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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,519	04/02/2004	Tadamitsu Sato	9281-4800	4866

7590
Brinks Hofer Gilson & Lione
P.O. Box 10395
Chicago, IL 60610

01/08/2008

EXAMINER

CHOWDHURY, AFROZA Y

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/817,519

Applicant(s)

SATO ET AL.

Examiner

Afroza Y. Chowdhury

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/4/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment received on **December 4, 2007** has been entered.

Claims 1-10 are currently pending. Applicant's request for continued examination is addressed below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1–10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujiwara et al.** (US 2003/0102875) in view of **Kasai** (US Patent 6,545,614).

As to claim 1, Fujiwara et al. discloses an input device comprising:

a plurality of electrodes arranged in a circumferential direction at equal intervals and having a predetermined area (abstract, fig. 6-8, page 1, [0008], page 3, [0052] – [0054]);

an insulating sheet laminated on surfaces of the respective electrodes (page 1, [0010] – [0011], page 2, [0041]);

and capacitance detecting means provided for each electrode so as to detect from the respective electrodes when a variation in capacitance formed between the respective electrodes and a portion of the human body which faces the electrode in spaces between the respective electrodes when a portion of the human body is adjacent to or in contact with an external surface of the insulating sheet ([0012], [0019], fig. 4, [0045], [0048] – [0049], [0066], [0067]).

Fujiwara et al. does not explicitly teach a clock signal generating means, signal delay means having a time constant CR, and a control unit.

Kasai teaches the capacitance detecting means comprising a clock signal generating (figs. 1(101), 2(1)) means for continuously generating a pulse signal composed of a predetermined frequency (col. 1, lines 20-21, col. 3, lines 17-25),

a signal delay means having a time constant CR defined by a product of the capacitance C (fig. 3(C4)) formed between the resistive electrodes and the portion of the human body and a resistor R (fig. 3(R5)) connected between the clock signal generating means and the capacitance C (col. 3, lines 31-47), and

a control unit (fig. 1(104)) that receives a detection signal from the capacitance detecting means to detect switching due to approach or contact of a portion of the human body to each electrode (col. 1, lines 25-27).

Therefore, it is obvious to one skill in the art at the time of the invention was made to combine Kasai's touch sensor with the input device of Fujiwara et al. to make a rotary input device in order to detect touch of a human finger for various application.

As to claim 2, Fujiwara et al. teaches a plurality of electrodes arranged in a circumferential direction at equal intervals and having a predetermined area (abstract, fig. 6-8, page 1, [0008], page 3, [0052] – [0054]);

He does not teach clock signal generating means for generating a clock signal, and delay means for delaying the clock signal according to the capacitance detected from the electrode when the human body is adjacent to or in contact with the external surface of the insulating sheet.

Kasai teaches the capacitance detecting means comprises: clock signal generating for generating a clock ((figs. 1(101), 2(1), col. 1, lines 20-21, col. 3, lines 17-25),

delay means for delaying the clock signal according to the capacitance detected from the electrode when a portion of the human body is adjacent to or in contact with an external surface of the insulating sheet (figs. 3, 5, col. 3, lines 31-47),

smoothing means for generating a smoothed signal according to a delayed amount, based on the clock signal which does not pass through the delay means (col. 7, lines 51-59), and

A/D converting means for analog-to-digital converting the smoothed signal according to an amount of the variation of capacitance ((fig. 26(7)).

Therefore, it is obvious to one skill in the art at the time of the invention was made to combine Kasai's touch sensor with the input device of Fujiwara et al. to make a rotary input device in order to detect touch of a human finger.

As to claim 3, Fujiwara et al. (as modified by Kasai) teaches an input device where the delay means, the smoothing means, and the A/D converting means are provided in each of the plurality of electrodes, respectively (fig. 26).

As to claim 4, Fujiwara et al. teaches an input device wherein the capacitance detecting means detects a variation of a facing area between one of the electrodes and the portion of the human body ([0045], [0048] – [0049]).

As to claim 5, Fujiwara et al. discloses an input device wherein the capacitance detecting means detects a time when the electrode faces the portion of the human body (pages 4-5, [0059], [0066], fig. 4).

As to claim 6, Fujiwara et al. teaches an input device wherein detecting means detects switching information on the plurality of electrodes simultaneously tapped ([0048] – [0049]).

As to claims 7, Fujiwara et al. discloses an input device wherein portions of the surface of the insulating sheet that are opposite to the electrodes are concaved or convexed from the surface of the insulating sheet (fig. 10, [0058]).

As to claims 8, Fujiwara et al. teaches an input device wherein an entire operation region in which the plurality of electrodes is provided is concaved or convexed

from regions other than the operation regions (fig. 10, [0058]).

As to claim 9, Fujiwara et al. discloses an input device wherein marks for indicating positions of the respective electrodes are printed on the surface of the insulating sheet ([0046]).

As to claim 10, Fujiwara et al. teaches an input device wherein a region in which the plurality of electrodes is formed is provided with a rotating body rotating around a center of thereof (fig. 6-8, [0009], [0052] – [0054]).

Response to Arguments

4. Applicant's arguments filed December 4, 2007 have been fully considered but they are not persuasive.

Applicant argues that Fujiwara et al. doesn't teach or suggest capacitance detecting means. However, the Examiner respectfully disagrees. Fujiwara clearly teaches "capacitance detecting means" (see, [0012], [0019], [0045])

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afroza Y. Chowdhury whose telephone number is 571-270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

Art Unit: 2629

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC
12/19/2007


AMARE MENGISTU
SUPERVISORY PATENT EXAMINER